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This list will replace all previous claim lists:

1. (currently amended) An inorganic scintillator comprising:
a direct-gap semiconductor;
a pair of codopants in the semiconductor to provide ~~radiative~~ dopant band to dopant trap radiative recombination, wherein:
one codopant provides electrons and the other copodopant traps holes, or one codopant provides holes and the other codopant traps electrons.
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (original) The scintillator of Claim 1 wherein the codopants provide donor band to acceptor trap recombination.
6. (original) The scintillator of Claim 5 wherein one codopant is a donor dopant which produces electrons in a donor band and the other codopant is an acceptor dopant trap which traps holes until they recombine with electrons in the donor band.
7. (cancelled)
8. (currently amended) ~~The scintillator of Claim 7~~ An inorganic scintillator comprising:
a direct-gap semiconductor;
a pair of codopants in the semiconductor to provide dopant band to dopant trap radiative recombination, wherein one codopant is an acceptor dopant which produces holes in an acceptor band and the other codopant is a donor dopant trap which traps electrons until they recombine with holes in the acceptor band.

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9. (original) The scintillator of Claim 1 wherein the codopants provide donor band to isoelectronic hole trap recombination.

10. (original) The scintillator of Claim 9 wherein one codopant is a donor dopant which produces electrons in a donor band and the other codopant is an isoelectronic dopant trap which traps holes until they recombine with electrons in the donor band.

11. (cancelled)

12. (currently amended) ~~The scintillator of Claim 11~~ An inorganic scintillator comprising:

a direct-gap semiconductor;

a pair of codopants in the semiconductor to provide dopant band to dopant trap radiative recombination. wherein one codopant is an acceptor dopant which produces holes in an acceptor band and the other codopant is an isoelectronic dopant trap which traps electrons until they recombine with holes in the acceptor band.

13. (original) The scintillator of Claim 1 wherein each codopant is present at about 0.01 mole % to about 1 mole %.

14. (original) The scintillator of Claim 1 wherein each codopant is present at about 0.1 mole % to about 0.2 mole %.

15. (original) The scintillator of Claim 1 wherein the direct-gap semiconductor is ZnO, CdS, PbI₂, HgI₂, CuI, ZnTe, or GaN.

16. (cancelled)

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17. (currently amended) ~~The scintillator of Claim 16~~ An inorganic scintillator comprising:

a direct-gap semiconductor;

a pair of codopants in the semiconductor to provide dopant band to dopant trap radiative recombination, wherein the direct-gap semiconductor and pair of codopants comprises[comprising] CdS:In,Te; CdS:In,Ag; or CdS:In,Na.

18. (original) The scintillator of Claim 1 wherein the direct-gap semiconductor is ZnO, one codopant is Ga, and the other codopant is P, N, or S.

19. (original) The scintillator of Claim 1 wherein the direct-gap semiconductor is GaN, one codopant is Ge, Si, S, or Se, and the other codopant is Mg.